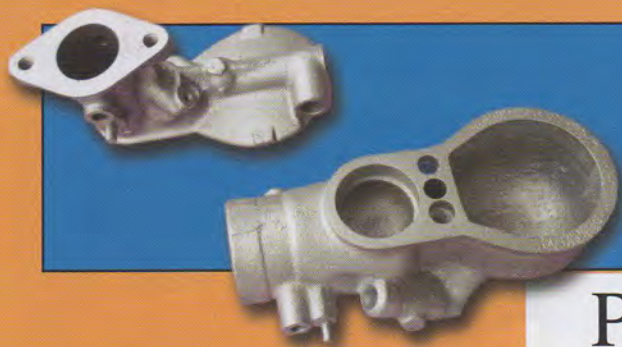




Zenith

Passageway Cleaning

By Tom Endy, Westminister, California

Many Zenith restoration articles recommend drilling out the brass plugs that were installed by the factory after the passageways were drilled, for the purpose of cleaning them out. I do not recommend this practice for several reasons. The first being that it is very easy to ruin a perfectly good Zenith core unless you know what you are doing and have developed a practiced technique. Replacing the factory plugs with reproduction plugs can either crack the castings or they can ultimately fall out. Another reason for not drilling the plugs out is that it is not necessary unless a particular passageway is extremely plugged.

Figures 1 and 2 show a top casting plug that was drilled out by a previous owner. The drill bit apparently protruded through to the small hole in the throat of the carburetor and molested the factory size hole. It is doubtful that this Zenith will idle properly once the drilled out outer hole has been plugged.

The technique I use ensures that the passageways are open and clear of debris without drilling out the plugs. This can be done with a simple paper clip. The paper clip is straightened out and bent into several curves that will allow it to be inserted into one end of a passageway until it exits out the other end.

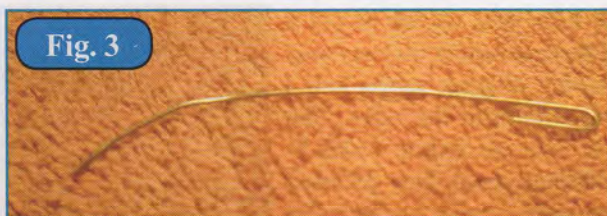
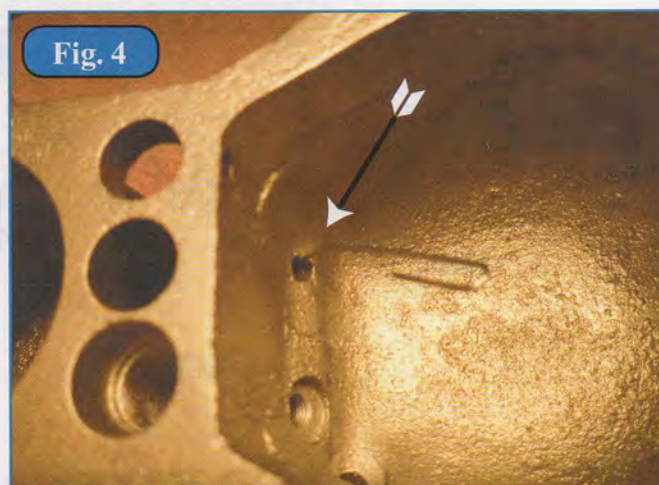
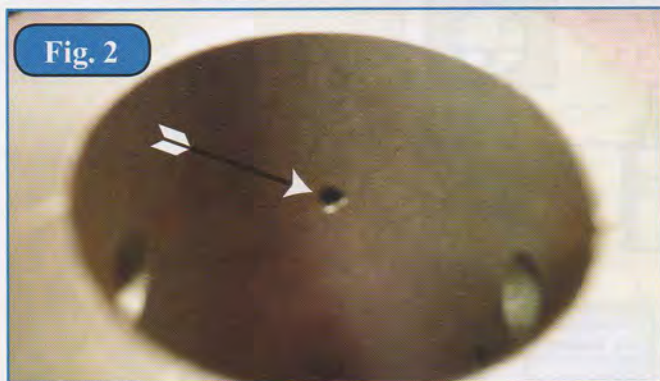


Figure 3 shows a common paper clip that has been straightened out and bent into a suitable curve to accommodate a given passageway.

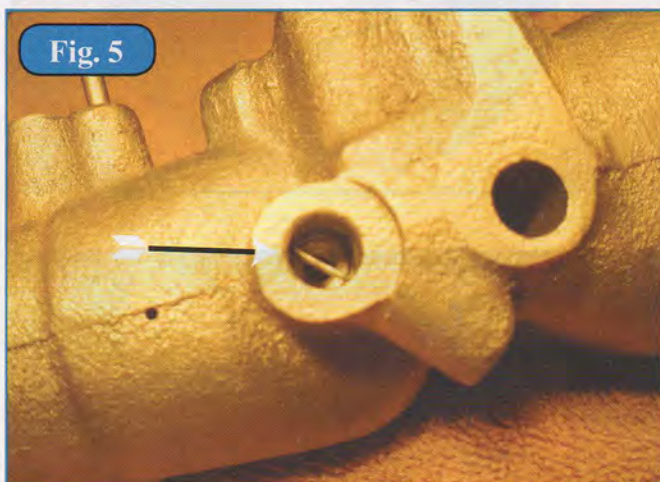
There are four major passageways in the bottom casting and two major passageways in the top casting. Each can be traversed with the paper clip.

My procedure is to completely disassemble both castings and soak them in lacquer thinner to remove paint and fuel deposits. The passageways are then checked with the paper clip. The castings are bead blasted with the bead medium directed through the passageways. The passageways are then blown out with shop air and checked again with the paper clip.



The first of the four passageways in the bottom casting to be checked with the paper clip is the one that feeds fuel from the reservoir to the bottom of the main jet.

Figure 4 shows the paper clip inserted into the passageway that runs from the fuel reservoir to the bottom of the main jet. **Figure 5** shows the paper clip exiting into the port where the main jet installs. You may have to use long nose pliers to help force the paper clip through.



The second bottom casting passageway runs from the fuel reservoir into the mounting hole for the comp jet, passes through the area where the secondary well installs, and exits into the port where the cap jet installs. Some castings are drilled slightly different and you might encounter a step between the secondary well and the cap jet. However, with patience and dexterity, the paper clip can be passed through all three areas.

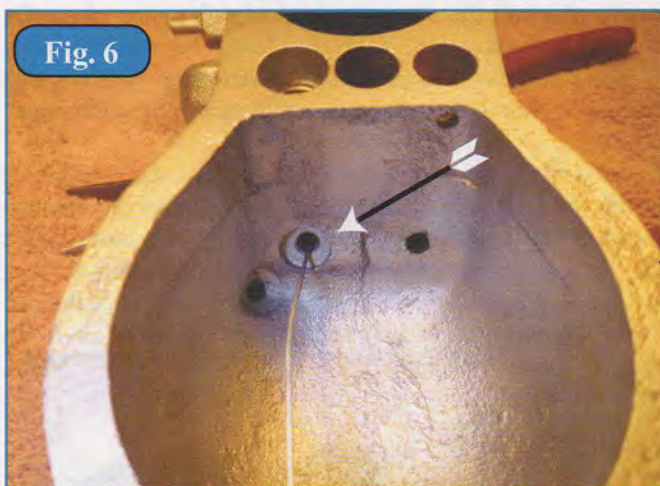
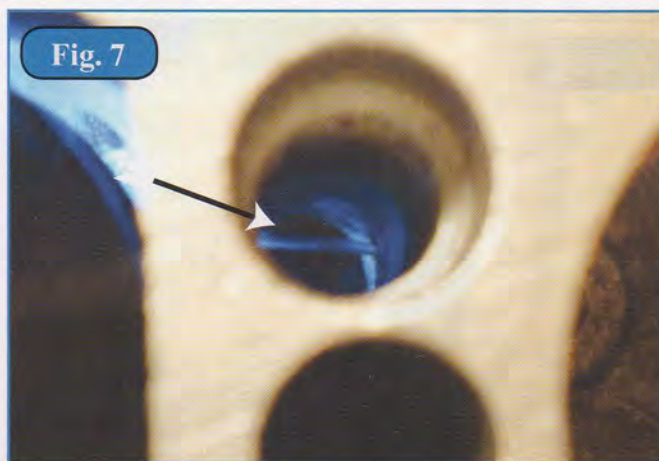


Figure 6 shows the paper clip entering the port where the comp jet installs. **Figure 7** shows the paper clip passing through the secondary well location. And **Figure 8** shows the paper clip exiting into the port where the cap jet installs.

The third passageway in the bottom casting is the most difficult to get a paper clip through. This passageway runs from inside the Gas Adjusting Valve (GAV) tunnel just above the GAV valve seat. The purpose of the passageway is to port fuel through



the GAV valve to the secondary fuel circuit when the valve is opened. There are variations in the castings. Some castings are drilled such that the passageway runs from the GAV tunnel to the secondary well. Others are drilled such that the passageway runs from the GAV tunnel direct to the port where the cap jet installs. Either way it is drilled still serves the same purpose of porting fuel to the secondary fuel circuit through the GAV valve. To determine which way the casting is drilled, shine a light down into the GAV tunnel and locate the hole that is just above the GAV valve seat. The location will vary depending on how the passageway was drilled. In order to pass a paper clip through this passageway, you will need to form it into a gentle curve with a slight hook on the end. You will also have to force it through the passageway with long nose pliers.

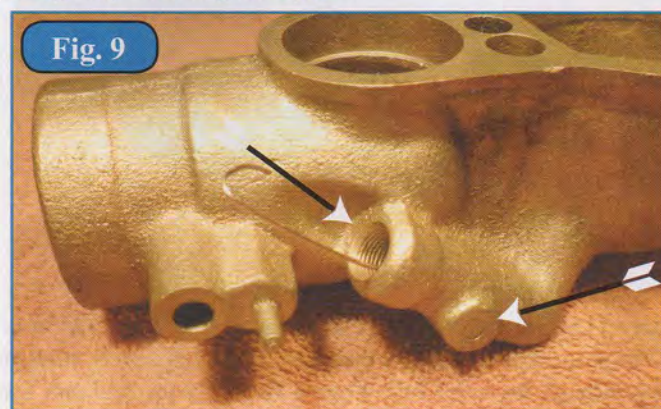


Figure 9 shows the paper clip being inserted into the GAV tunnel. What cannot be seen is that the paper clip curves into a hole just above the GAV valve seat and travels in toward the center of

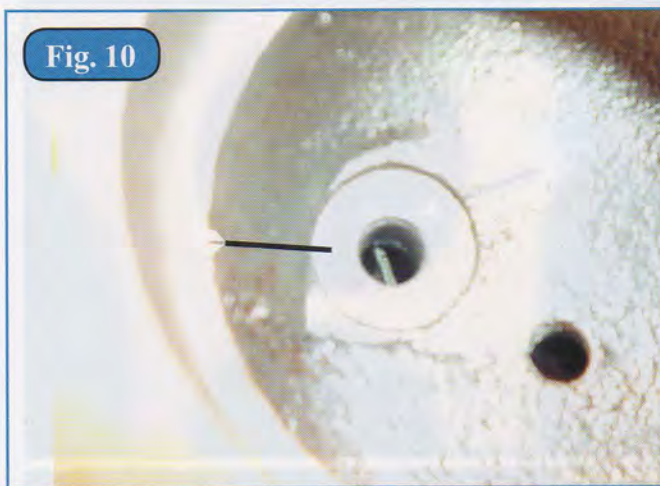


Fig. 10

the casting. The paper clip will exit either into the secondary well or into the port for the cap jet. **Figure 10** shows the paper clip in this particular casting exiting into the port for the cap jet. Note the plug on the side of the GAV tunnel. This is where the passageway was drilled from the outside by the factory.

The fourth bottom casting passageway runs from the fuel bowl reservoir to the bottom of the GAV valve. To test this passageway, the paper clip is straightened out and passed down through the GAV tunnel and straight down through the GAV valve seat. The early castings have a brass screw-in type valve seat that looks much like the comp jet. It should be removed for the cleaning process. Care should be taken not to confuse this valve seat with the comp jet, as they look similar, but they are decidedly different. Remember to reinstall this valve seat when re-assembling the carburetor. The later castings have the valve seat as an integral part of the casting and is not removable. Shine a light down into the GAV tunnel to determine which valve seat the casting has. The paper clip is inserted straight down through the valve seat. The other end will exit into the hole that feeds fuel from the reservoir.



Fig. 11

Figure 11 shows the paper clip being inserted into the GAV tunnel. What cannot be seen is that the paper clip travels straight down through the valve seat. **Figure 12** shows the fuel port for the bottom of the GAV valve. It is the hole that is on the far left at the bottom of the reservoir. In order to see the end of the paper clip, you have to shine a light into the hole.

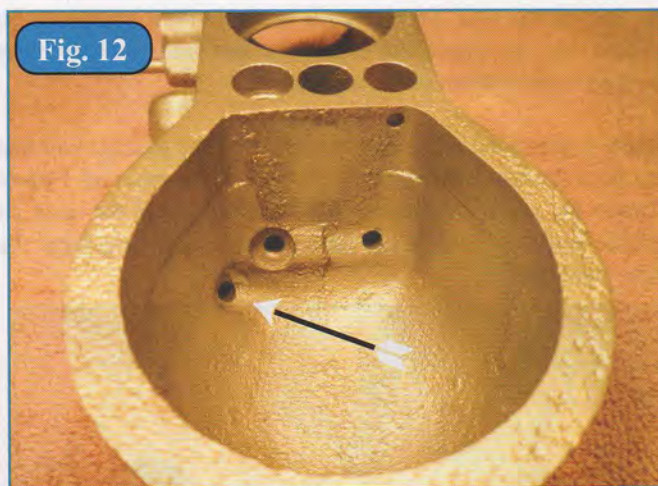


Fig. 12

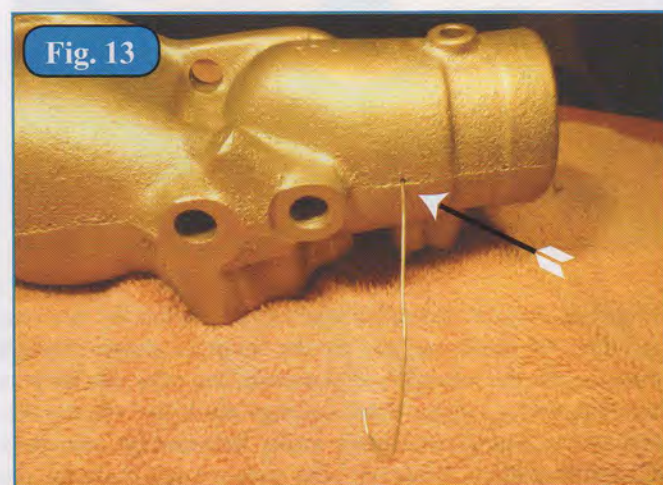


Fig. 13

The only other hole that should be checked with a paper clip in the bottom casting (**Figure 13**) is the drain hole. This should be done after the casting has been painted to be sure paint does not clog the hole. The drain hole is an important feature of the carburetor.

The top casting has two major passageways that should be checked. The first is the most difficult to get a paper clip through as it makes two angle turns, but it can be done by inserting the paper clip through either end. The passageway runs from the port where the idle jet installs to a small hole in the throat of the carburetor. This passageway can also be tested with shop air. Insert

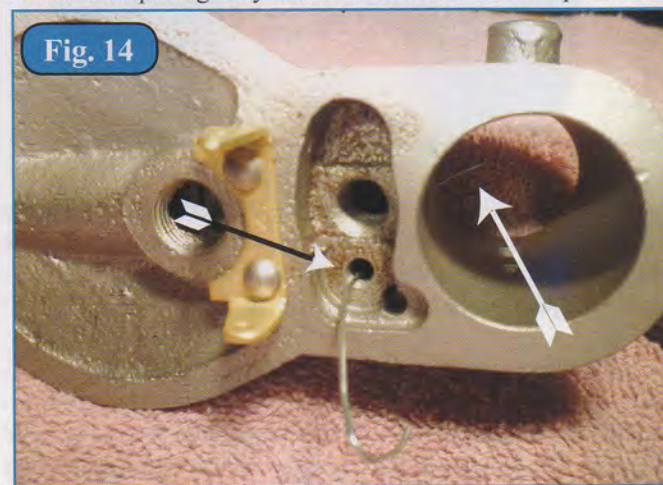


Fig. 14

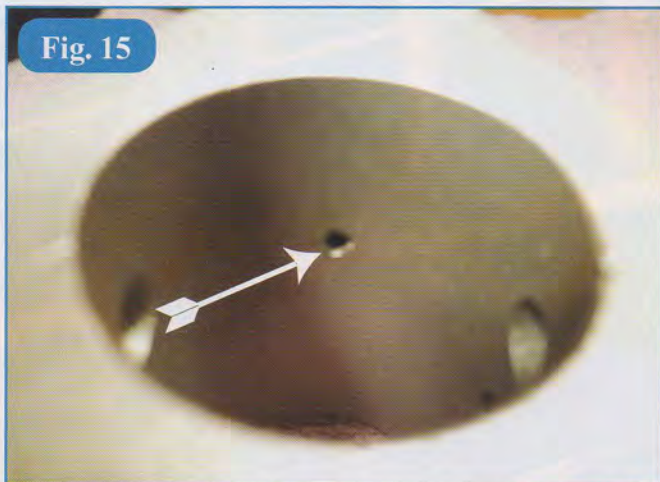


Fig. 15

the tip of the air gun into the idle jet port and apply shop air. With your finger you should be able to feel a blast of air exiting the small hole in the throat of the carburetor.

Figure 14 shows the paper clip inserted into the port for the idle jet and can be seen exiting through the small hole in the throat of the carburetor. **Figure 15** is a close up of the small hole in the throat of the carburetor.

The second passageway in the top casting runs from where the air-idle screw installs. It is a straight shot down to the port where the idle jet installs.



Fig. 17



Fig. 18

Figure 16 shows the paper clip inserted into the port where the air-idle screw installs. The passageway runs straight down to where the idle jet installs. **Figure 17** shows the paper clip exiting where the idle jet installs. Note the hole just above where the paper clip is exiting. Just inside this hole is where the tip of the air-idle screw seats. The end of the paper clip may also exit there depending on how much of a curve is put into the paper clip.

The only other hole in the top casting that a paper clip should be inserted in is a very short passageway that runs under the mounting flange next to the float assembly mount. Shown in **Figure 18** above.

The final image, **Figure 19**, shows both the top and bottom castings cleaned, bead blasted, with all the passageways checked with a paper clip, and ready for painting.

Making sure that all the passageways are clear of debris is essential to a good functioning Zenith.

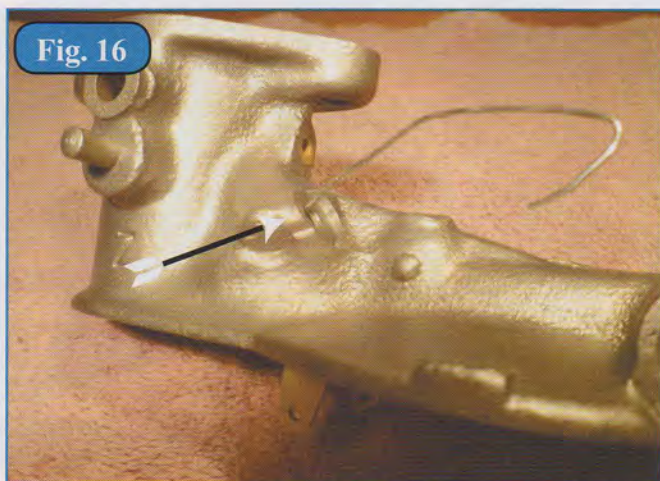


Fig. 16



Fig. 19